The Moderating Effect of Long-term Orientation on Experience Economy in Augmented Reality Adoption

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Abstract

Recently, the tourism industry is providing tourists with an enhanced touristic experience via various cutting-edge information technologies such as augmented reality (AR). In addition, there has been an increased interest on the effects of cultural characteristics on human behaviour and phenomena. The aim of this paper is to examine how long- and short-term orientation moderates the relationship between experience economy provided by AR application and users’ perceived value. A research model is proposed and tested with data from 264 participants experiencing an AR application in Ireland and South Korea. The data are analysed using PLS-Graph and the findings reveal that there are significant differences in terms of the effect of education and escapism on the perceived value of using AR applications. These findings provide important implications for academics and practitioners in terms of the development and implementation of AR applications.

Key Words Augmented Reality, Long-term Orientation, Cultural difference, Experience economy

Experience Theme Experience Technologies

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Introduction

There has been an increased interest on the effects of cultural characteristics on human behaviour and phenomena by a number of researchers (Venaik, Zhu and Brewer, 2013). According to Hofstede and Bond (1988), it is important to measure and compare cultural differences in order to identify values and beliefs that differentiate countries from one another. According to Ardichvili and Kuchinke (2002, p. 100), long-term orientation refers to “the degree to which people’s actions are driven by long-term goals and results, rather than the short-term results and the need for immediate gratification”.

Oh, Fiore and Jeoung (2007) revealed that the experience economy belongs to the fastest growing sectors and particularly in tourism, an increased focused is placed on the staging of experiences rather than a focus on delivery. Pine and Gilmore (1999) included education, esthetics, entertainment and escapism as the four realms of the experience economy. According to Oh et al. (2007, p. 127), the “four realms of experience offer not only conceptual fit but also a practical measurement framework for the study of tourist experiences”. Furthermore, Oh et al. (2007) emphasised the importance of incorporating the four realms into conceptual tourist experience models in order to clarify the applicability of education, esthetics, entertainment and escapism in various tourism contexts. Particularly in the area of Augmented Reality (AR), only limited research exists within the tourism context. Previous studies examined Hofstede’s cultural factors (individualism/collectivism, power distance, uncertainty avoidance, and masculinity/femininity) (Crotts and Erdmann, 2000; Lee et al., 2015; Litvin et al.,
2004), but very little research was conducted regarding long/short-term orientation. Therefore, the aim of this paper is to examine how Long- and Short-term orientation moderates the relationship between experience economy provided by AR application and users’ perceived value. South Korea and the Republic of Ireland were selected as they have different cultures in terms of long-term orientation and short-term orientation.

Literature Review
Experience Economy

In order to meet customers’ needs of seeking unique experience rather than simply consuming products or service, the paradigm of businesses have been shifted from focusing the product or service to emphasizing ‘staged’ experience which creates a memorable experience (Pine & Gilmore, 1998; Oh, Fiore & Jeoung, 2007). ‘Staged’ experience is an essential product of tourism, in other words, productive activity of tourism is creation of touristic experience (Sternberg, 1997). Pine & Gilmore (1998) divided this ‘staged’ experience into four realms (or dimensions) of experience which can be distinguished by two spectrums of participation (passive and active participation) and connection (absorption and immersion): entertainment, educational, esthetic, and escapist experience (Figure. 1). Since then, numerous researches have applied these four realms of experience economy to tourism (Charters, Fountain & Fish, 2009; Cho, Wang & Fesenmaier, 2002; Kounavis, Kasimati, Zamani & Giaglis, 2012; Mehmetoglu & Engen, 2011; Oh et al., 2007; Park, Oh & Park, 2010).

Recently, tourism industry is providing tourists with enhanced touristic experience by combining various cutting-edge information communication technologies (ICTs) which can encourage whole genres of experience economy (Pine & Gilmore, 1998). AR is one of new and emerging technologies and it is a visual technique of providing 3D images and information that superimposed on the real world view provided by camera of device (Azuma, 2001; Bujak, Radu, Catrambone, MacIntyre, Zheng & Golubski, 2013; Kounavis, Kasimati, Zamani & Giaglis, 2012). Especially, AR application has been regarded as one of the most useful technologies for enhancing tourists’ experience in tourism sites (Han et al., 2014). Several prior researches have investigated the relationship between users’ experience and AR (e.g. Fritz, Susperregui & Linaza, 2005; Kounavis et al., 2012;
Olsson & Salo, 2011). A considerable number of AR applications have been actively developed and provided by arts and cultural heritage institutions or organizations around the world in order to dispense archaeological information by combining the real resources with virtual image and information (Fritz et al., 2005). Thus, AR can not only prevent physical degradation of arts and cultural heritage sites aggravated by frequent access by tourists but also give numerous opportunities to achieve knowledge about history and joyfulness (Fritz et al., 2005). According to Kounavis et al. (2012), AR applications enhance both utilitarian and hedonic experience of tourists. In other words, AR application is a useful information system (IS) to fulfil different requirements of tourists such as the attractiveness, user-friendliness, educational value, and reusability (Fritz et al., 2005).

Oh et al. (2007) stated that research, incorporating education, esthetics, entertainment, and escapism into a structural model is limited. According to Chen and Chen (2010, p. 30), perceived value refers to “the consumer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given”. Chen and Chen (2010) identified that experience quality has a positive effect on perceived value which influence the intention to use. Perceived value has commonly supported the intention to use services in the tourism context (Chen & Chen, 2010; Cronin, Brady & Hult, 2000; Petrick, 2004) however, research incorporating the four experience economy dimensions is scarce (Oh et al., 2007) and therefore, the following hypotheses are proposed:

\[ H_1: \text{Education has a positive effect on perceived value.} \]
\[ H_2: \text{Esthetics has a positive effect on perceived value.} \]
\[ H_3: \text{Entertainment has a positive effect on perceived value.} \]
\[ H_4: \text{Escapism has a positive effect on perceived value.} \]
\[ H_5: \text{Perceived value has a positive effect on the intention to use AR.} \]

Long-term Orientation
The research on cross-cultural difference has been regarded as basis for both tourism research and marketing strategy because, in general, tourists tend to seek the touristic experiences related to their cultural background (Landauer, Haider & Pröbstl-Haider, 2013). Especially, combined with various IS which have the role of enhancing tourists’ experience, tourism industry is facing increasing number of inbound tourists who have different cultural backgrounds (Pine & Gilmore, 1998; Tsang & Ap, 2007). Meanwhile, cultural difference can be a barrier for tourists to accept IS (Lee, 2013) and the process of IS acceptance depends on the culture (Harris, Rettie, & Cheung, 2005). Thus, a cross-cultural approach about IS acceptance is needed (Di Serio, Ibáñez, & Kloos, 2013; Harris et al., 2005).

One of the most widely used dimensions for measuring and comparing cultural characteristics among the countries is ‘five dimensions’ of Hofstede (1980) and Hofstede & Bond (1988). In 1980, Hofstede (1980) proposed four dimensions of measuring national culture: individualism/collectivism, power distance, uncertainty avoidance and masculinity/femininity. After then, focusing on fast economic growth of East Asian countries such as South Korea, China and Japan, Hofstede & Bond (1988) added Long-term orientation dimension because they regarded Long-term orientation as one of the most powerful driving forces of economy growth of many East Asian countries. Contrary to Short-term orientation of many Western countries which focuses on need for immediate gratification (Ardichvili & Kuchinke, 2006) and hedonic value (Mattila, 1999), Long-term orientation has its roots in Confucian values concerning time, tradition, perseverance, thrift, trying to acquire skills and education, working hard, and allowing others to “save face” for future’s goals or results (Ardichvili & Kuchinke, 2006; Bearden, Money & Nevins, 2006; Hofstede & Minkov, 2010).

Some previous research have investigated the moderating effect of Long (Short)-term orientation in the relationships between corporate social responsibility (CSR) and new ventures’ financial performance (Wang & Bansal, 2012), between reward time (immediate/accumulate) or type (monetary/non-monetary) of restaurant’s reward program and customer loyalty (Park, Chung, & Woo, 2013), and between information diversity and civic virtue (Yu & Cable, 2011). However, compared to first four cultural difference dimensions, not enough attention has been paid to the Long (Short)-term orientation. Therefore, the following hypotheses are proposed:
H1a: The effect of education on perceived value is stronger within long-term orientation cultures.
H2b: The effect of esthetics on perceived value is stronger on short-term orientation cultures.
H3c: The effect of entertainment on perceived value is stronger on short-term orientation cultures.
H4d: The effect of escapism on perceived value is stronger on short-term orientation cultures.

Methodology

The survey was conducted at Deoksugung palace, one of the traditional royal palaces in Korea, and An Post Museum, one of the historic buildings in the Dublin’s independence trail. Both sites have launched AR applications “Deoksugung in my hands” and “Dublin AR” respectively and both AR applications have similar structure, design, interface and role of providing their users with historic information and joyfulness at the same time. Meanwhile, considering that most visitors are not aware of these AR applications, we provided participants the manual to familiarise themselves with the applications. After reading the manual, the randomly selected visitors used AR applications for about 30 minutes and then participated in the survey. Measurement items used for this study were adopted from previous literature (e.g. Oh et al., 2007; Van der Heijden, 2004). All items were measured on a seven-point Likert scale with strongly disagree (1) and strongly agree (7). This procedure yielded 27 measurement items including 4 realms of experience economy (twenty items), perceived value (four items), and intention to use AR (three items). In order to test the proposed research model, we used a partial least squares (PLS) regression analysis, using PLS-Graph Version 3.0. PLS regression analysis has several advantages, including small sample size, and few assumptions about measurement scale and normal distribution (Ahuja & Thatcher, 2005). Using PLS-Graph, the measurement model and structural model were estimated.

Analysis and Results

A total number of 145 questionnaires were collected at Deoksugung Palace and 119 questionnaires were collected at An Post Museum. Out of total respondents of Deoksugung Place, 94 (64.8 %) were female, and 51 (35.2%) were male; about half of respondents were between 20 and 29 (46.2%) and the majority were students (60.0%). In An Post Museum, out of 136 respondents, 98 (82.4%) were female, and 21 (17.6%) were male; most of respondents were 29 below (92.4%) or students (89.9%). Although the respondents of these surveys were young and high-educated, only 48 (33.1%) and 11 (9.1%) respondents of Korea and Ireland had ever used AR respectively.

Measurement Model

The measurement model was assessed separately for the full sample and each subgroup (Long-term orientation group and Short-term orientation group). Confirmatory factor analysis was conducted first. To validate our measurement model, we undertook validity assessments of content, convergent, and discriminant validity. First, the content validity of our survey was established from the previous literature, and we patterned our measures on the constructs validated by other previous researchers. Second, convergent validity can be established by calculating composite reliability (CR), Cronbach’s alpha, and the average variance extracted (AVE) (Bhattacherjee & Sanford 2006). Cronbach’s alpha and AVE of each construct of this model exceed 0.5 and CR is also greater than 0.7. In other words, all of the constructs used in our research model satisfied the requirements, thus, convergent validity could be established. Finally, the discriminant validity of the measurement model can be established when the square root of the AVE is greater than the correlations between the construct and another construct. The square root of the AVE for each construct exceeded the correlations between that construct and other construct. Thus, the results (Table 1) established that the item demonstrated discriminant validity.
<table>
<thead>
<tr>
<th>Measurement items</th>
<th>Long-term orientation group</th>
<th>Short-term orientation group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cross loading</td>
<td>t-value</td>
</tr>
<tr>
<td>EDU</td>
<td>The experience by using the AR application has made me more knowledgeable</td>
<td>0.898</td>
</tr>
<tr>
<td></td>
<td>I learnt a lot using the AR application.</td>
<td>0.937</td>
</tr>
<tr>
<td></td>
<td>Using the AR application has stimulated my curiosity to learn new things.</td>
<td>0.920</td>
</tr>
<tr>
<td></td>
<td>Using the AR application was a real learning experience.</td>
<td>0.897</td>
</tr>
<tr>
<td></td>
<td>Using the AR application has been very educating.</td>
<td>0.919</td>
</tr>
<tr>
<td>EST</td>
<td>When I used AR application, I felt a real sense of harmony.</td>
<td>0.871</td>
</tr>
<tr>
<td></td>
<td>When I used AR application, just being here was very pleasant.</td>
<td>0.915</td>
</tr>
<tr>
<td></td>
<td>When I used AR application, the setting was not bland.</td>
<td>0.907</td>
</tr>
<tr>
<td></td>
<td>When I used AR application, the setting really showed attention to design detail.</td>
<td>0.825</td>
</tr>
<tr>
<td></td>
<td>When I used AR application, the setting provided pleasure to my senses.</td>
<td>0.860</td>
</tr>
<tr>
<td>ENT</td>
<td>Using the AR application was enjoyable.</td>
<td>0.895</td>
</tr>
<tr>
<td></td>
<td>Using the AR application was captivating.</td>
<td>0.904</td>
</tr>
<tr>
<td></td>
<td>I enjoyed the Attraction through the AR application.</td>
<td>0.928</td>
</tr>
<tr>
<td></td>
<td>The attraction through the AR application excited me.</td>
<td>0.916</td>
</tr>
<tr>
<td></td>
<td>The attraction was very entertaining through the AR application.</td>
<td>0.672</td>
</tr>
<tr>
<td>ESC</td>
<td>By using the AR application, I felt like I played a different character.</td>
<td>0.936</td>
</tr>
<tr>
<td></td>
<td>By using the AR application, I felt like I was living in a different time or place.</td>
<td>0.942</td>
</tr>
<tr>
<td></td>
<td>Using the AR application let me imagine to have become someone else.</td>
<td>0.939</td>
</tr>
<tr>
<td></td>
<td>When using the AR application, I completely escaped from reality.</td>
<td>0.753</td>
</tr>
</tbody>
</table>
When using the AR application, I felt I was in a different world.

PV  I can choose which attraction to look at quicker and easier using the AR application.
  I use the AR application to decide on the attraction I want to go.
  I use the AR application to get better access information on new attraction.
  I use the AR application to make better decisions whether or not to go to a certain attraction.

INT  I intend to use the AR application in the future.
  I predict I will use the AR application in the future.
  I plan to use the AR application in the future.

**PLS analysis and moderating effect of Long(Short)-term orientation**

We estimated three separate models by using PLS graph: the full sample, Long-term orientation group and Short-term orientation group. After then, we tested for differences across all three models using the test for differences. The size of bootstrapping sample that was used in the PLS analyses was 500.

In terms of main hypotheses (H1-H5), as shown in Table 2, perceived value is influenced by education ($\beta=0.414$, $t=4.676$, $p<0.001$) and esthetics experience ($\beta=0.219$, $t=2.503$, $p<0.05$), whereas it is not influenced by entertainment ($\beta=0.089$, $t=0.979$, n.s.) and escapist experience ($\beta=0.020$, $t=0.408$, n.s.).

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Path</th>
<th>Estimates</th>
<th>t-value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Education $\rightarrow$ Perceived value</td>
<td>0.414</td>
<td>4.676</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>Esthetics $\rightarrow$ Perceived value</td>
<td>0.219</td>
<td>2.503</td>
<td>Supported</td>
</tr>
<tr>
<td>H3</td>
<td>Entertainment $\rightarrow$ Perceived value</td>
<td>0.089</td>
<td>0.979</td>
<td>Not supported</td>
</tr>
<tr>
<td>H4</td>
<td>Escapist $\rightarrow$ Perceived value</td>
<td>0.020</td>
<td>0.408</td>
<td>Not supported</td>
</tr>
<tr>
<td>H5</td>
<td>Perceived value $\rightarrow$ Intention to use AR</td>
<td>0.613</td>
<td>11.047</td>
<td>Supported</td>
</tr>
</tbody>
</table>

$R^2$
- AR satisfaction: 0.448 (44.8%)
- Intention to recommendation: 0.375 (37.5%)

In order to examine the moderating effect of Long (Short)-term orientation, a multi-group analysis using PLS was conducted by comparing differences in the coefficients of the corresponding structural paths for the Long-term orientation group and short-term orientation group (Chin, 2007; Keil, Tan, Wei, Saarinen, Tuunainen, & Wassenaar, 2000). The results show that the coefficients from each path for education and escapist experience were significantly different between Long-term orientation group and Short-term orientation group, whereas esthetics and entertainment experience were not significantly different between those groups (Table 3). Test for hypotheses H1a and H4a demonstrate that the impact of education experience (Long-term orientation: $0.666 >$ short-term orientation: $0.185$, $\Delta t=3.095$) and escapist (Long-term orientation: $-0.088 <$ Short-term orientation: $0.186$, $\Delta t=2.528$), were statistically different between Long-term orientation group and Short-term orientation.
However, hypotheses $H_{2a}$ and $H_{3a}$ were not statistically significant different between Long-term orientation and short-term orientation group.

Table 3. Comparison of the Path Coefficients between Long-term orientation group and Short-term orientation group

<table>
<thead>
<tr>
<th></th>
<th>Path</th>
<th>Long-Term Orientation Group (A)</th>
<th>Short-Term Orientation Group (B)</th>
<th>t-value (A-B)</th>
<th>Test of hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_{1a}$</td>
<td>Education $\rightarrow$ Perceived value</td>
<td>0.666</td>
<td>0.185</td>
<td>-3.095 (0.481)</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{2a}$</td>
<td>Esthetics $\rightarrow$ Perceived value</td>
<td>0.179</td>
<td>0.216</td>
<td>0.216 (-0.037)</td>
<td>Not supported</td>
</tr>
<tr>
<td>$H_{3a}$</td>
<td>Entertainment $\rightarrow$ Perceived value</td>
<td>0.026</td>
<td>0.102</td>
<td>0.402 (-0.076)</td>
<td>Not supported</td>
</tr>
<tr>
<td>$H_{4a}$</td>
<td>Escapist $\rightarrow$ Perceived value</td>
<td>-0.088</td>
<td>0.186</td>
<td>2.528 (-0.274)</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Discussion and Conclusion

The aim of this paper was to examine the moderating effect of Long (Short)-term orientation on the relationship between experience economy provided by AR application and users’ perceived value. This study empirically tested the impact of cultural difference (long/short-term orientation) on the effects of the experience dimensions onto the perceived value of AR applications. Considering the limited research on the experience economy incorporating the importance of cultural differences, this study provides important implications for the development and implementation of AR applications in the tourism context.

There are a number of interesting implications that can be drawn from these findings. Thinking about the value of providing AR applications for tourists, museums, attractions and destinations in Eastern cultures have to strongly focus on the educational value of their applications as Asian tourists, from a long-term orientation culture, tend to associate the value of an application through its educational potential. Interestingly, this needs also to be taken into account by Western cultural heritage destinations due to increased number of Asian tourists visiting European destinations.

This study furthermore supported Western culture’s strong demand for escapism, as the need to become someone else or entering a new world strongly influenced the value perception of the AR application within the Irish context. Those two findings are supported by the definition of Ardichvili and Kuchinke (2002) stating that Eastern cultures are more driven by long-term goals, while Western cultures are more concerned with instant gratification. Nevertheless, Mattila (1999) proposed that Western cultures are more concerned with hedonic values which could not be supported within the present study as we did not find evidence for a significant difference on the relationships of entertainment and esthetics towards the perceived value. Nevertheless, this study has clearly shown that there are evident differences in terms of the value of education and escapism and cultural heritage destination marketing managers need to be aware of these differences to create their AR marketing strategies accordingly.

The present study has some limitations. Due to the novelty factor, mostly young and well-educated people participated in this study which makes it difficult to generalise the findings to a wider population. In addition, the two aforementioned applications were designed slightly differently in terms of content and visual layout due to the two different attractions, one being a palace and one a museum. Therefore, in particular the unsupported hypothesis with regards to esthetics might be related to application design. In the future, it is recommended to build the same application with only slightly different content for the same context (either museums or other visitor attraction) to fully test the cultural effects of esthetics.

References


